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Tooele Chemical Agent Disposal Facility
Mustard Destruction Campaign

Presentation to the

Mercury Work Group

August 23, 2007

Presentation Summary

- Mustard Campaign Challenges
- Operational Experience
- Future Plans
- PFS Highlights

Mustard Campaign Challenges

- *Known presence of Hg in some of the items in Mustard Stockpile at varying concentrations*
- How to prevent having an idle facility while waiting for modification to address Hg issue
  - Solution: Mustard Strategy; process items with little or no Hg during design and installation of Hg abatement equipment
- How to identify Hg containing items before processing
  - Solution: Sample every ton container (TC) in Deseret Chemical Depot (DCD) Stockpile before transfer to TOCDF

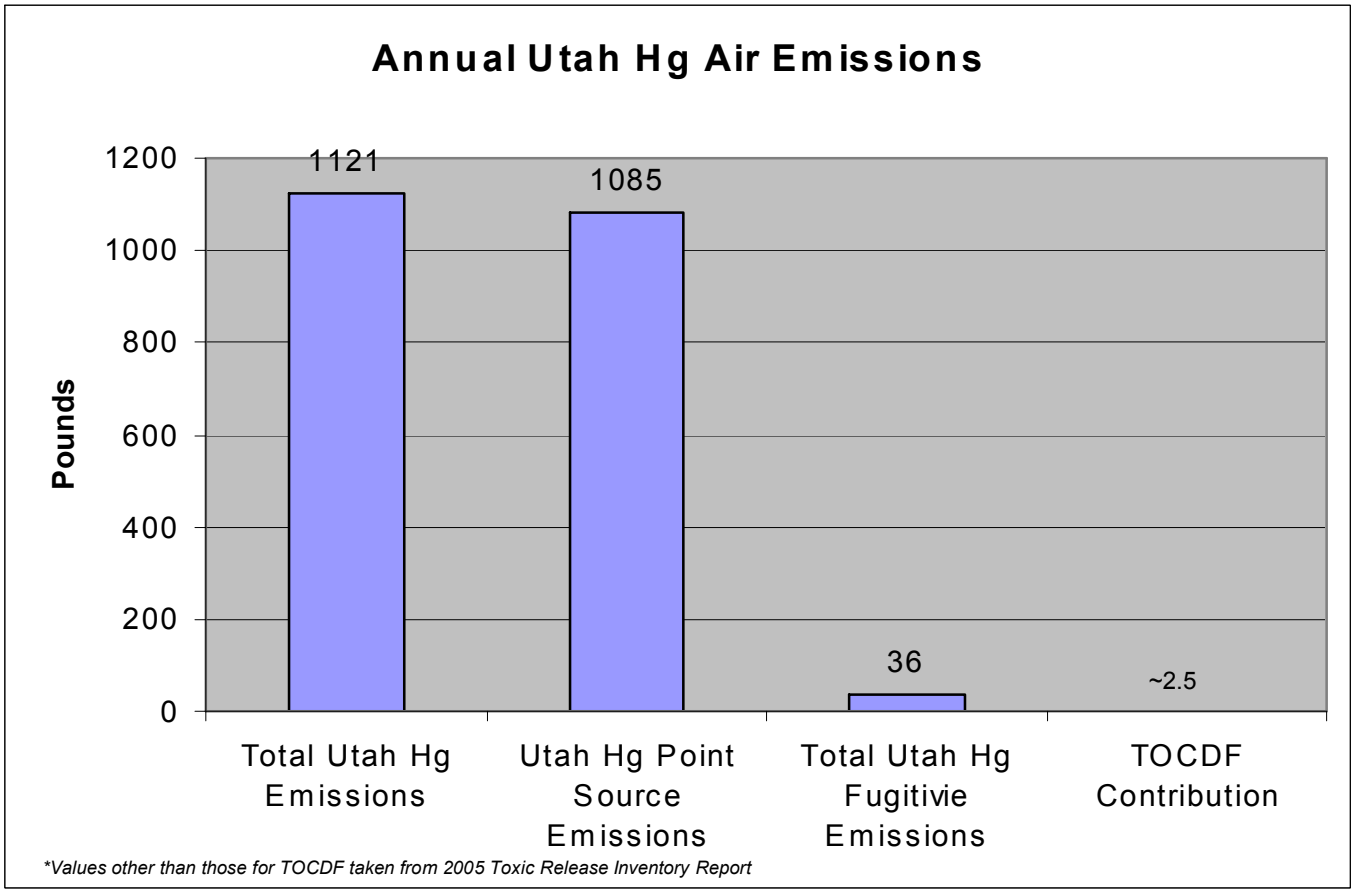
Mustard Campaign Challenges (cont.)

- How to show compliance with Hazardous Waste Combustor Maximum Achievable Control Technology (HWC MACT) Hg Emission Standard
- Solution:
  - Base compliance on exhaust gas Hg monitoring
  - Use 40 CFR §75, Appendix K; continuous sampling via activated carbon absorption tubes
  - Method demonstrated valid by Relative Accuracy Test Audit (RATA)
  - EPA's most preferred measure of compliance (i.e., exhaust gas monitoring)

Operational Experience

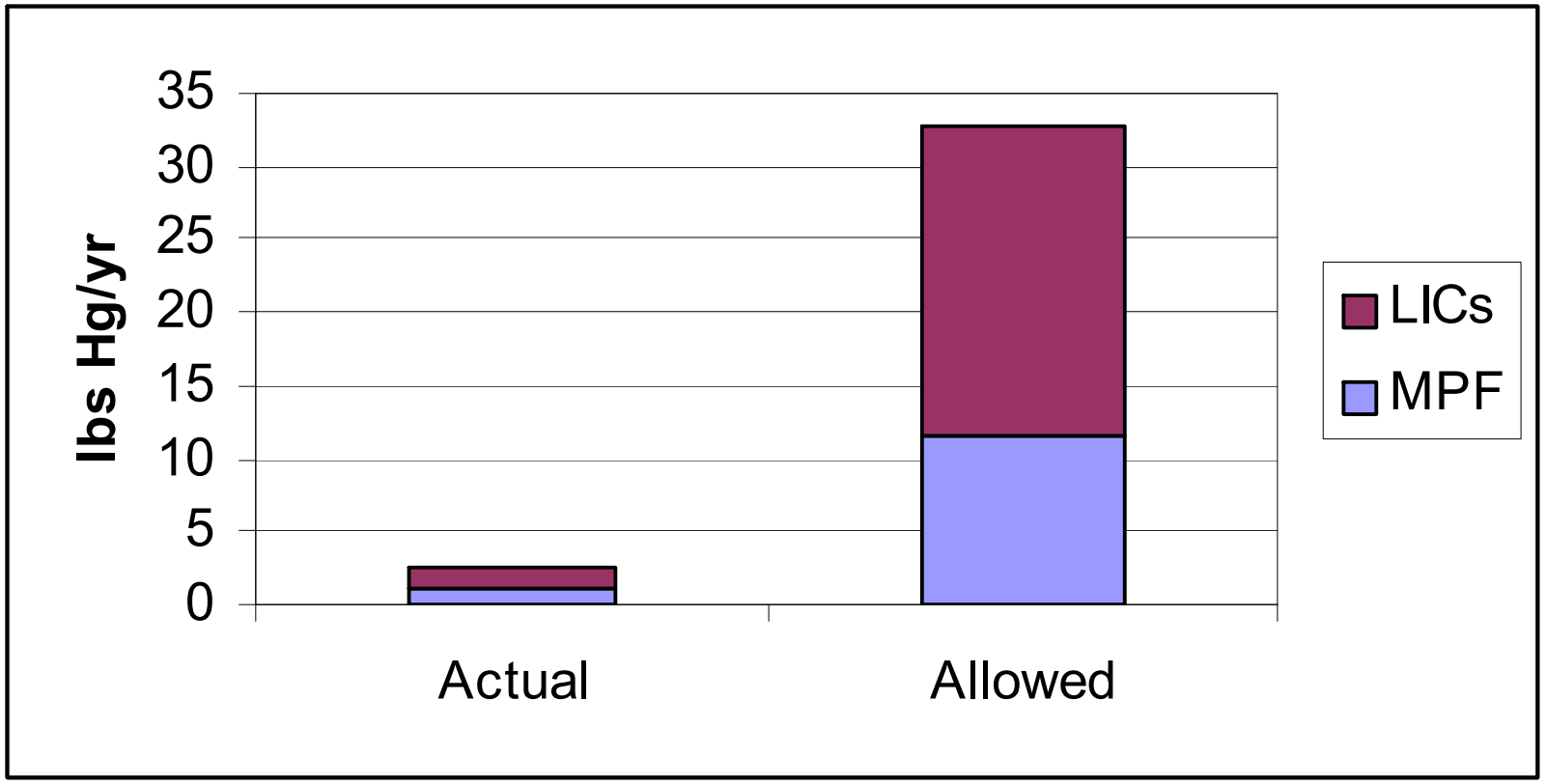
- Assumption: Liquid/Solid Mustard Hg Correlation: <1ppm Hg in liquid Mustard equates to insufficient Hg in TC heel to cause an exceedance of the MACT Emission Standard
  - Lesson Learned: The 59th TC processed had a liquid Mustard Hg results greater than the analytical method's Practical Quantification Limit (PQL) but less then 1 ppm. The 12-hour rolling average result exceeded the standard by <2X
  - Corrective Action: The baseline criteria was refined from "less than 1 ppm" to "less than or equal to the PQL". This correlation has been validated based on over 1,900 TCs processed without a Hg emission standard exceedance

Operational Experience (cont.)



Ultimate Validation: Hg emissions from August 20, 06 to June 30, 07 total 2.5 lbs (1.1 lbs from MPF based on Appendix K results and 1.4 lbs from LICs conservatively assuming Mustard Hg concentration at the PQL), < 0.2% of total for 2005

TOCDF Actual vs. Allowed Hg Emissions



TOCDF Hg emissions are limited to 32.8 lbs/yr based HWC MACT Emission Standard (130 µg/dscm @ 7% O_2) and Air Permit incinerator hours of operation limitations;< 8% of allowed

Future Plans

TOCDF Munition Processing Matrix

	Baseline (Low Heel/Low Hg) HD Ton Containers	155mm H Projectiles	4.2" HT Mortars	4.2" HD Mortars	High Heel/Low Hg HD Ton Containers	High Heel/High Hg HD Ton Containers
Appendix K Sampling	X	X	X	X	X	X
Heel Transfer System On-line					X	X
PFS On-line				X		X

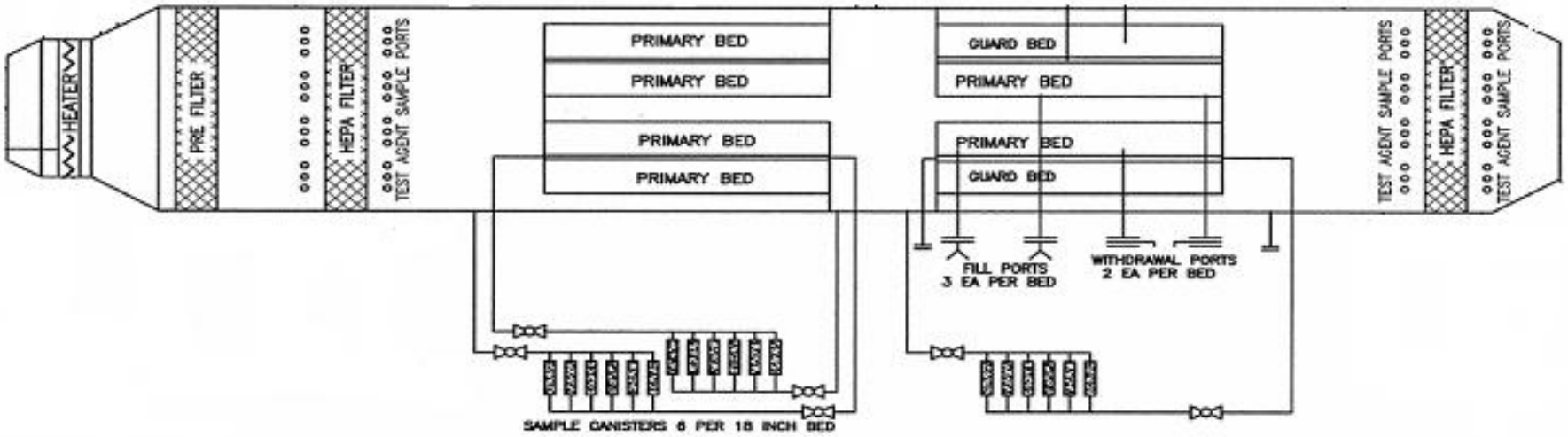
There are three Mustard variants; H (Levenstein Mustard), HT (Thickened Mustard), and HD (Distilled Mustard). Increased knowledge of Mustard Stockpile shows Hg contamination associated with HD.

Design, install, and systemize fixed bed sulfur impregnated activated carbon Pollution Abatement System Filter Systems (PFS) on the LICs MPF

PFS Highlights

- Scalable lab Carbon Performance test is being conducted
  - Validate performance against simulated MPF flue gas conditions
  - Determine approximate useful life of the activated carbon
- Appendix K sampling will be conducted on the exhaust of each PFS

PFS Highlights (cont.)



Activated Carbon total weight > 30,000 lbs.

Combined Carbon Bed depth = 69 inches

Mid-bed monitoring in addition to exhaust gas monitoring to determine breakthrough and need for filter change-out